

Researchers sequence the quinoa genome, and introduce crop hybrids to developing nations

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As soils across the world become less fertile and more desert-like due to climate change, it's getting harder for farmers, especially those in

developing nations, to grow basic life-preserving crops such as corn, wheat and rice.

Perhaps that's why [quinoa](#) is called the miracle grain. Not only is the tiny, circular seed rich in protein, [dietary fiber](#) and B vitamins, but varieties of the crop like those being developed at BYU can also grow just about anywhere—salty soils, dry soils, high altitudes.

Since [helping to first sequence the genome of quinoa five years ago](#)—and subsequently sequence the genome of quinoa varieties from Europe and Asia as well—researchers at BYU have been developing new hybrids of the crop that are even more heat tolerant, more salt tolerant and more capable of growing in very dry conditions.

"Our goal is to improve the nutritional status of populations of the [developing world](#)," said Rick Jellen, BYU Plant and Wildlife Sciences professor and quinoa expert. "We are at a crossroads, and we need to have [crops](#) that are more reliably productive. That's why we are so invested in encouraging small farming communities to start growing quinoa."

The researchers also said concerns of COVID-19 impacts to international shipping are motivating factors for getting more quinoa growth to flower throughout the developing world.

To that end, Jellen and his team, including several undergraduates, have focused much of their efforts in working with several institutions to introduce quinoa in Morocco. That has resulted in experiential learning trips to Morocco for students where they've been able to sit down with local farmers and eat couscous made with BYU strains of quinoa.

"The quinoa doesn't need a lot of water to grow, it's very resistant, very rich in protein and very good for Morocco," said Asmaa Allaoui, a Ph.D.

student and collaborator at the Institut Agronomique et Veterinaire Hassan II in Rabat, Morocco.

The experience has also been very good for BYU students like Lauren Young.

"In Morocco, you see a lot of rural people struggling, especially in years where there's such unpredictable drought," said Young, a grad student studying genetics and biotechnology. "Having a crop like quinoa would enable them to have a stable food source where they're not worrying year to year if they'll have food on the table every day. It's hard to hear about the struggles people are having, yet it's something we can fix."

Provided by Brigham Young University

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